Implementation of Telemedicine in Nursing Facilities and Clinics During the COVID-19 Pandemic

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Abstract

Background: Telemedicine utilization grew exponentially during the COVID-19 pandemic. Long-term care facilities were the most vulnerable, hardest hit, and least resourced to combat the pandemic.

Objective: During the pandemic 2 Telemedicine implementation studies were performed in nursing homes and community clinics. The objectives included an analysis of Telemedicine impact on patients, staff, and providers, and identification of the implications for managing the COVID-19 virus first in closed nursing home facilities, and then later in community clinics. Also, the identification of possible barriers, challenges, and the formulation of recommendations for policymakers and regulators.

Methods: The two studies used a diverse set of research methods including data collection from Monthly Learning Community Meetings (stakeholders involved with setting up the TM systems in their facilities), Telemedicine-Visit Documentation forms, and Bi-Weekly Telemedicine Utilization Check-Ins meetings.

Results: In study 1 five long-term care facilities (LTCF) in California participated, with 3 contributing 37 patients in total. In the broadened community clinic second study a total of 8756 patients were seen, primarily for routine follow-up care. Patient comfort level was high with over 90% reporting comfort in both studies and clinicians reporting over 85% comfort in both studies. The findings emphasize the need for leadership to support staff buy-in and change management, the need for quality and consistent training, and the need for technical assessments of WiFi capacity, cybersecurity, and compatibility with software and networks.

Conclusions: Nursing home uptake of Telemedicine at the beginning of the pandemic was poor, mainly because of lack of internal resourcing and high staff turnover, but expansion of the Telemedicine program to several community clinics later on proved to be successful. The studies provided recommendations for policymakers, funders, and clinicians to support successful Telemedicine programs. Telemedicine holds great promise for providing positive patient outcomes and improvements in overall population health. However, optimizing the potential of Telemedicine is a matter of transforming culture and healthcare systems, not just providing technology.

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INTRODUCTION

Telemedicine utilization grew exponentially during the COVID-19 pandemic.[1] Public health officials, providers, and patients alike were concerned with virus spread and exposure during healthcare visits. Older adults in long-term care facilities (LTCF), were the most impacted by the pandemic.

There have been numerous studies that have demonstrated the effectiveness of Telemedicine in LTCFs.[2 3] The same is true for community facilities across many different medical specialties where there have also been a number of pandemic era studies published demonstrating the efficacy of Telemedicine in numerous specialties.[4 5]

In contrast we have found only one major study examining Telemedicine usage in nursing homes during the pandemic. Ulyte et al (2023) have reviewed 2018-2022 Medicare fee for service claims nationally in nursing homes and have shown how Telemedicine (mainly for primary care and psychiatry) was rapidly adopted in early 2020 rising from 0.15% of nursing home consultations to 15% Skilled Nursing Facility (SNF) and 25% outpatient visits, but subsequently stabilized at low-use rates (2% SNF and 8% outpatient) which were still markedly higher than prior to the pandemic.[6] They noted that higher rates of Telemedicine visits were associated with improved access to psychiatry in SNF's and concluded that policy changes were needed to facilitate further access to Telemedicine.

We have not found any studies focusing on the barriers to care and policy changes in relation to nursing homes that would be helpful post pandemic, although there has been a large amount of focus on changing regulations to enable telepsychiatry outpatient visits to become permanently more available after their massive expansion during the pandemic. It seems from the literature, therefore, that there is a gap in relation to barriers to care and related policy initiatives following the pandemic regarding Telemedicine in LCTFs.

In 2020, the California Emerging Technology Fund (CETF), a statewide non-profit with a mission to close the Digital Divide in California and a focus on the digitally-disadvantaged and medically-underserved populations in California, launched a pilot project with 5 LTCFs in Phase 1 (Oct 2020-June 2022).[7] CETF approached numerous LTCFs in California, but found relatively little interest early in the pandemic. In 2021, partly because of the poor uptake of LTCFs in Phase 1, CETF expanded the project in Phase 2 (Aug 2021 – June 2023)[8] to include community-based health clinics and a critical access hospital which actively participated in the project. The CETF Board of Directors determined that the best way it could address the COVID-19 crisis was to implement Telemedicine in LTCFs and later expand its use.[9]

The objectives for Phase 1 and 2 included the implementation of Telemedicine technology within health care facilities, both LTCFs and Community Clinics, the analysis on the impact of Telemedicine on the implications for COVID-19, the reduction of emergency room transfers and costs, the formulation of recommendations for policymakers and regulators, and the identification of possible barriers, challenges, and best practices for implementing Telemedicine. A standardized evaluation process was developed that examined the impact of Telemedicine on residents, staff and providers.

Phase 1 was conducted during the peak of the COVID-19 pandemic, in which older adults were

disproportionally affected, particularly patients in LTCFs. At the height of the COVID-19 pandemic, nearly 30% of the deaths in the United States occurred in LTCFs.[10 11 12] LTCF operations were completely disrupted with a shortfall of staff and increased morbidity and mortality in the facilities creating a barrier for clinicians to conduct in-person visits with their patients. Further, in March 2020, the Center for Medicare and Medicaid Services (CMS) enacted Telemedicine waivers for LTCFs that encouraged Telemedicine use and they were reimbursed as the originating site for hosting video visits. [13]

Phase 2 included some participant overlap that included 3 LTCFs that participated in Phase 1, plus 2 new LTCFs, and it expanded to community clinics (FQHCs and Tribal Community Clinics), who saw the large majority of patients, and a critical access hospital.

METHODS

Both Phase 1 and 2 studies were based on a similar set of research methods and tools including summary data from Monthly Learning Community Meetings, Telemedicine-Visit Documentation forms, and Bi-Weekly Telemedicine Utilization Check-In Meetings. Additionally, Los Angeles Jewish Health (LAJH) – the largest healthcare facility participant and a super-user of Telemedicine for both Phases joined CETF for in-depth discussions to further inform barriers, challenges, and recommendations.

The participants in Phase 1 and 2 were required to establish a leadership team consisting of high-level administrators, medical directors, nursing directors/managers, IT and data managers, and other staff. The leadership team worked in collaboration with CETF project staff to provide input on the proposed evaluation measures, the study's design and processes, barriers, challenges, and recommendations. Importantly, Phase 2 participants had the benefit of building on and adapting from the Phase 1 evaluation measures, the study's design, and processes.

The participants collected several types of quantitative data which included facility characteristics, demographics, utilization purpose, visit modality, physician specialty, patient and clinician satisfaction, and other data.

Material and Technical Support

CETF funded all management and program support, which included technical assistance, device training, and procurement and accounting for equipment purchases. CETF also hired a Chief Medical Advisor who provided valuable clinical support and oversight of the evaluation.[14]

A critical first step for participants was to conduct an assessment to ensure buildings had WiFi capacity to transmit broadband Internet to support Telemedicine equipment. At the facility's

expense, each site was encouraged to conduct this review and provide the necessary upgrades needed.

In Phase 1, the participants were offered the AMD-1740 Tablet Cart by AMD Global. CETF had no preference for equipment or vendors; however, it selected a product which was cost-effective, equipped with basic peripherals, integrated easily into clinical flow of LCTFs, and included set-up, training, and support from the vendor.

In Phase 2, in addition to the AMD cart, the Amwell C500 Telemedicine cart was offered as an option. Similar to AMD, Amwell provided customers with cart set-up and connectivity support, virtual training on the carts, while CETF provided ongoing technical support and training for both products.

Learning Community

A Learning Community was established for Phase 1 and Phase 2, which consisted of key leadership team staff at each facility. The Learning Community met monthly via videoconference, which were designed to maintain project momentum, address challenges, and inform evaluation and data collection processes.

In order to support all the project teams, a Bi-Weekly Telemedicine Utilization Check-In Form (Appendix 2) was drafted and revised in collaboration with the Learning Community in Phase 1 and 2. CETF used this form to support Telemedicine utilization, identify barriers, and determine if Telemedicine was used to prevent the transmission of infectious diseases, including COVID-19.

Telemedicine Visit Documentation Form

Through the Learning Community in Phase 1, the group developed the Telemedicine Visit Documentation Form (Appendix 1), which was designed to collect specific data during each Telemedicine visit. This data included demographic information, equipment used, reason for visit, type of clinician, diagnosis, and satisfaction questions. For Phase 2, the Telemedicine Visit Documentation Form (Appendix 1A) was revised and adapted to include additional data.

RESULTS

Facility Characteristics

Table 1 displays the characteristics of the facilities that participated in the Phase 1. Despite their desires and the program's leadership and mentoring, two facilities were unable to start Telemedicine visits and did not contribute to data.

Table 2 displays the characteristics of the facilities that were part of Phase 2. Post-acute care facilities were recruited, along with outpatient programs that provide care to rural underserved communities. Similar to the results for Phase 1, there were participants in Phase 2 that provided very limited data.

Telemedicine Visits

Table 3 describes characteristics of Telemedicine visits during Phase 1 and Phase 2. All documentation was anonymous. In Phase 1, the population that had Telemedicine visits had an average age of 88.5 ± 8.1 years. The majority were female (78.38%) and white (94.60%). This reflected the LTCF population where the majority of patients are older adult females. Most of the visits were for a routine follow-up by a Medical Doctor, but more than a quarter (27.03%) of the visits were unscheduled and occurred because of an immediate need (e.g., a change of medical condition).

In Phase 2, the sample size in mainly community clinics was much larger (8,756 consults) and the demographics were more diverse in age and ethnicity. The majority of forms returned did not specify gender – presumably this question was simply overlooked during completion. However, the majority (63%) of those that did specify gender were female. It is important to note that most (90%) of the visits were conducted via telephone rather than with the Telemedicine equipment. Similar to Phase 1, the most common reason for Telemedicine appointment was for a routine follow-up visit and the clinician conducting the visit was often a Medical Doctor. A large number of Telemedicine visits were conducted for primary care (77.34%) which was similar to Phase 1 (72.97%). There were no subspecialty visits in Phase 1, but in Phase 2 there were subspecialty visits for psychiatry, pediatrics, rheumatology, pain medicine, and endocrinology.

Patient and Clinician Satisfaction Data

Table 4 provides the satisfaction data. For Phase 1, where most of the patients were either very comfortable or comfortable with Telemedicine visits (94%). Nearly half (43%) of patients would recommend video visits to a best friend, meanwhile more than half (54%) were not sure. Of the returned forms, nearly all (89%) indicated that staff assisting with the Telemedicine visit believed that Telemedicine improved the facility's ability to deliver care to the patient. In nearly one in five (18.9%) of all Telemedicine visits, the clinician stated the visit avoided transfer of the patient out of the facility to an emergency department.

Patient satisfaction in Phase 2 indicated that most of the patients were comfortable or very comfortable with Telemedicine (99%). Interestingly, when comparing patients who reported being very comfortable, Phase 2 was higher (69.2%) than in Phase 1 (13.5%). The number of people who were not comfortable was nominal for both Phases. Two questions were modified in Phase 2 to query patients about their preference for a Telemedicine visit for themselves and their best friend and expanded on the types of Telemedicine visits, including and comparing video, in-person, telephone, or any listed mode. The results showed that 15% would use Telemedicine visits for themselves and more than a quarter (17.8%) would recommend Telemedicine to their best friend. Nearly half of the patients would choose any visit type listed for themselves or their best friend. Nearly all (99.6%) of the clinicians were comfortable providing care through video visits; and almost all (99.3%) of the returned forms indicated that the operator believed that the Telemedicine visit improved the facility's ability to deliver care to the patient, which is higher than in Phase 1 (89%).

Barriers and Challenges

Table 5 highlights the barriers and challenges identified in Phase 1 and 2.
Throughout both studies, Los Angeles Jewish Health (LAJH) was highly motivated to integrate Telemedicine into its campus facilities, while collaborating with both cohorts of project participants

and offering technical and clinical expertise to cohort members. Further, LAJH engaged with its staff and conducted internal discussions to better understand the barriers and document challenges it needed to overcome.

Recommendations

Table 6 outlines recommendations that emerged from Phase 1 and 2, which provides recommendations for facilities and programs to consider prior to implementing Telemedicine and recommendations for policymakers including elected leaders, government officials, regulators, and public and private funders. The recommendations highlight the promise of Telemedicine and its implications for health and digital equity.

Policy Implications

Proposed Telemedicine Legislation

Phase 1 and 2 have informed CETF policy strategy to institutionalize Telemedicine policy in California. Assemblymember Dr. Akilah Weber, a practicing physician, has authored AB1943 – Telemedicine for All Act in the 2024 Legislative Session. This legislation seeks to optimize the use of Telemedicine to augment and enhance health and medical care for all California residents – especially those who are medically-underserved – to improve individual patient outcomes and overall population health. This legislation has a focus on the federal Medicaid Program in California, known as Medi-Cal.

DISCUSSION

This article analyzes evidence from two initiatives that focused on Telemedicine implementation during the COVID-19 pandemic in a quest to improve timely access to quality healthcare for vulnerable populations. It is critical that all stakeholders including policymakers recognize the urgency to establish high-quality, effective Telemedicine programs in an effort to address health equity by increasing access to Telemedicine, in accord with Ulyte's findings at a national level, coupled with ensuring digital access essential for utilizing Telemedicine.

The two studies had very different clinical outcomes, with only 37 patients seen in the LCTFs compared with 8,756 in the community clinics. It was not unexpected that adoption of Telemedicine would be extremely challenging, particularly during a global pandemic that was particularly disruptive to LTCFs. Unfortunately, two LTCFs that had participated in Phase 1 were unable to contribute data due to the challenges they faced in the midst of the COVID-19 pandemic,[15] including the patient risk factors.[16] None of the LTCFs undertook large numbers of TM consultations which was likely a reflection of the extraordinary times these institutions faced during the pandemic, with novel approaches to clinical care simply not prioritized an atmosphere of general disruption, staff turnover and shortages. Table 5 details the barriers, especially in LCTF's, while Table 6 examines the recommendations from our studies as developed by the Learning Community discussions. These recommendations focus on change management, and how difficult this was in particular in the LCTF's during the pandemic

The findings indicate that the COVID-19 pandemic brought to the public and government's attention the systemic barriers that LTCF programs have, which reflect the long-standing larger issues that exist in the long-term care industry. It is not within the scope of this article to review these issues but, numerous policies at all levels of government have been proposed or enacted in attempts to improve long-term care, and recently CMS published their minimum staffing standards for LTCFs.

There is one long-standing deficiency that is directly related to this effort and contributed to the lack of successes achieved. LTCFs make up a miniscule percentage of medical research sites and that percentage does not improve significantly in Telemedicine research. The failure to focus research on older adults, along with not providing LTCF's with the resources to partake in the research directly contributed to this study's challenges and lack of success. In some cases, Telemedicine has been examined to address urgent medical issues[17] and reduce emergency department use,[18] and possible hospitalizations.[19] Attempts to implement Telemedicine during the pandemic were especially challenging.[20]

A small but positive side-effect of the COVID-19 pandemic is that public institutions that provide services to the unserved and underserved are receiving more attention. The question is whether or not attention will truly facilitate the goal that inspires those in the industry to eliminate underfunding, under-resourcing, and over-criticizing while overcoming the ageism that exists.

To serve this population in the manner that they deserve to be served, requires not relying on old methods or processes that have failed to provide the desired results. It demands that through research we learn how to care for older adults in the manner that they want to be cared for. It demands focusing on new methods of educating the clinicians that provide care to older adults and establishing standards at national, state, and local levels for the education and resources provided to government funded health care institutions. It demands not penalizing the many for the actions of the few and demands giving back to the greatest generation of our time the respect, service, and compassion that they modeled for us. It demands fixing the problems that we are aware of before we need to use the system.

This current study was mainly limited in its attempt to implement Telemedicine during the COVID-2019 pandemic with funding and staffing challenges. It is the authors' recommendation that additional implementation research be conducted before we find ourselves in the middle of another pandemic, where researchers will have to face similar challenges. These recommendations may serve as a guide for others who want to implement Telemedicine.

CONCLUSIONS

Overall, both phases illuminated many unanticipated outcomes related to implementation that must be taken into consideration by policymakers, private funders, and practitioners. However, it is clear that providing Telemedicine equipment alone is not sufficient.

The findings support the following conclusions for Telemedicine, which are encouraging overall, especially for medically-disadvantaged communities and for the future of Telemedicine.

- Telemedicine shows a high level of patient and provider satisfaction in Telemedicine as a modality for care (including family satisfaction for LTCF patients).

- Telemedicine can decrease emergency transfer of patients to the hospital, particularly from SNFs, which reduces impacts on patients and reduces costs to the system.
- Telemedicine is being used increasingly for behavioral health visits to improve access to high quality care and decrease missed appointments.
- Telemedicine can increase access to medical expertise and specialty care to improve patient outcomes, in specialties such as pain medicine, endocrinology, neurology, among others.
- Telemedicine can decrease the number of vehicle trips to healthcare facilities without impairing patient outcomes, thereby reducing impacts on the environment.
- Telemedicine costs are costs associated with set-up, training, and maintenance; therefore, administrative oversight and dedicated support staff are needed to fine-tune and upgrade Telemedicine services as technologies emerge.
- Successful implementation of Telemedicine requires organizational leadership and focus.

Telemedicine holds great promise for providing patient outcomes and overall population health in LTCF's and community clinics. However, optimizing the potential of Telemedicine is a matter of transforming culture and healthcare systems, not just providing technology. It is to be hoped that the option of using Telemedicine in LCTF's, will eventually reach the same level as seen nationally where, post-pandemic, most medical outpatient programs have about 10% of consultations performed by Telemedicine, with about 35% in mental health.[21]

Table 1. CETF Pilot Project Evaluation Facilities (Phase 1)

Facility	Bed Size	Part of a Continuing Care Retirement Community	For-Profit /Non-profit	Organization has more than one site	Urban / Rural	Total # of Forms Submitted (n=) & % of Forms
Jewish Health (SNF)	105	No	Non-profit	Yes	Urban	n= 25 67.57%
Inland Christian (SNF)	59	Yes	Non-profit	No	Urban	n= 5 13.51%
Sierra View (SNF)	59	Yes	Non-profit	No	Rural	n= 0
The Fountains (SNF)	145	No	Non-profit	No	Urban	n= 0
Eskaton Roseville (ALF)	96	Yes	Non-profit	Yes	Urban	n= 7 18.92%

SNF = Skilled Nursing Facility; ALF = Assisted Living Facility

Table 2. FCC Telemedicine Evaluation: Characteristics of Healthcare Facilities (Phase 2)

Facility and Location	Size/Capacity	Patient Population	Programs	Total # of Forms Submitted (n=) & % of Forms
LA Jewish Health *Reseda, CA*	8-Building Campus Facility: 1108 Beds	Geriatric	Residential Living, Comprehensive Care, and Community Involvement: SNF and Assisted Living; Independent Living; Memory Care; Hospice and Palliative Care; Short-Term Rehabilitation; PACE; Annenberg School of Nursing Program	n=51 0.58%
Brethren Hillcrest Homes *LaVerne, CA*	Care Campus Complex: 450 Beds	Geriatric	SNF; Independent Living; Residential Living; Assisted Living; Memory Care	n= 2 0.02%
Carmel Valley Manor *Carmel, CA*	28-Acre Care Campus Complex: 24 Beds – Assisted Living 36 Beds – SNF 149 Units – Independent Living	Geriatric	SNF; Independent Living; Assisted Living; Health Clinic	N=0
Chaparral House *Berkeley, CA*	49 Beds	Geriatric	SNF; Memory Care; Post-Acute Care	n=2 0.02%
Chapa-De Indian Health (2 Facilities) *Auburn, and Grass Valley, CA*	2 Health Care Complexes: 17,754 Patients Served in 2021	Founded to serve Native populations, but serves all patients.	Dental, Health, Diabetes Clinic, Rheumatology Clinic, and Psychiatry	n= 912 10.42%
(The) Fountains Skilled Nursing and Rehabilitation *Yuba City, CA*	145 Bed Facility	Geriatric	SNF; Short Term Rehabilitation; Hospice Care	n= 4 0.04%
Sacramento Native American Health Center *Sacramento, CA*	1-Building Facility: Approx. 12,000 Patients Served Annually	Native populations and underserved communities.	Medical; Dental; Vision; Behavioral Health; Specialty Care	n= 7,564 86.39%
Southern Inyo Health District *Lone Pine, CA*	2-Building Facility: 4 Acute-Care Beds 33 SNF-Beds	Rural Community	Acute Care; Diagnostic Imaging; Emergency; Infusion Therapy; Regenerative Medicine; Rehabilitation; Rural Health Clinic; SNF; Suboxone Clinic MAT Program; Wound Care	n= 61 0.70%
Tiburcio Vasquez Health Center *Southern Alameda County, CA*	8 Primary Care Clinics	Underserved Populations Over 25,000 Patients Served Annually.	Primary Care; Dental, Behavioral Health; Youth Health Services; Optometry	n= 160 1.83%

Table 3. Patient Demographic and Visit Details

	Phase 1	Phase 2
Age	88.5 ± 8.1 (Mean ± SD)	n= 8,756
0-1		0.19% (n= 17)
1-12		2.36% (n= 207)
12-17		2.14% (n= 187)
18-30		15.66% (n= 1,371)
31-45		30.38% (n= 2,660)
45-64		37.99% (n= 3,326)
65+		10.64% (n= 932)
Not Specified		0.64% (n= 56)
Gender	n= 37	n= 8,756
Female	78.38% (n= 29)	8.46% (n= 741)
Male	21.32% (n= 8)	4.97% (n= 435)
Not Specified		86.57% (n= 7,580)
Race	n= 37	n= 8,756
Asian Pacific Islander		7.17% (n= 628)
Black/ African American		15.79% (n= 1,383)
White	94.60% (n= 35)	38.59% (n= 3,379)
Latino/ Hispanic	2.70% (n= 1)	7.47% (n= 654)
Native American		13.52% (n= 1,184)
Other		6.88% (n= 602)
Not Specified	2.70% (n= 1)	10.58% (n= 926)
Equipment Used	n= 37	n= 8,756
Telephone (Smart or Dial)	13.51% (n= 5)	90.82% (n= 7,952)
Laptop	2.70% (n= 1)	4.49% (n= 393)
Tablet	13.51% (n= 5)	1.98% (n= 173)
Telehealth Cart	70.28% (n= 26)	1.60% (n= 140)
Unspecified Device		1.11% (n= 98)
Reason for Visit	n= 37	n= 8,756
Regular/Follow-up	72.97% (n= 27)	96.24% (n= 8,427)
Change of Condition	27.03% (n= 10)	0.26% (n= 23)
COVID-19		0.31% (n= 27)
Miscellaneous		0.26% (n= 23)
Confidential		0.24% (n= 21)
Not Specified		2.69% (n= 235)
Type of Clinician	n= 37	n= 8,756
Medical Doctor/ Doctor of Osteopathic Medicine	86.49% (n= 32)	50.72% (n= 4,441)
Physician Assistants		22.21% (n= 1,945)
Registered Nursing Practitioner	13.51% (n= 5)	27.04% (n= 2,368)
Not Specified		0.03% (n= 2)
Clinician Specialty	n= 37	n= 8,756
Primary Care	72.97% (n= 27)	77.34% (n= 6,772)
Psychiatry	2.70% (n= 1)	17.18% (n= 1,504)
Pediatrics		3.79% (n= 332)
Rheumatology		0.37% (n= 32)
Pain Management		0.67% (n= 59)
Endocrinology		0.17% (n= 15)
Not Specified	24.33% (n= 9)	0.48% (n= 42)

Table 4. Patient and Clinician Telemedicine Satisfaction

	Question Asked	Phase 1	Phase 2
Prevention of Transfer	Did the Telehealth visit prevent transfer? (Only for	n= 37	n= 59

	SNF)		
Yes		18.92% (n= 7)	52.54% (n= 31)
No, Due to Routine Visit		51.35% (n= 19)	47.46% (n= 28)
No Answer		29.73% (n= 11)	
Patient Comfort	Were you comfortable with your video healthcare visit?	n= 37	n= 1,147
Very Comfortable		13.52% (n= 5)	69.2% (n= 794)
Comfortable		81.08% (n= 30)	30.1% (n= 345)
Not Comfortable		2.70% (n= 1)	0.7% (n= 8)
No Answer		2.70% (n= 1)	
Resident/Patient Recommendation	Would you recommend a video visit to a friend or a family member?	n= 37	
Yes		43.25% (n= 16)	
Not Sure		54.05% (n= 20)	
No Answer		2.70% (n= 1)	
Patient Preference for Future Visit	For the condition you were treated for today, which of the following types of visits would you prefer in the future?		n= 1,130
Video Visit			15.49% (n= 175)
In Person			8.05% (n= 91)
Telephone			17.88% (n= 202)
Video Visit or Telephone			4.69% (n= 53)
Video Visit or In Person			3.45% (n= 39)
In Person or Telephone			0.71% (n= 8)
Any of these Listed			49.73% (n= 562)
Patient Recommendation	For the condition you were treated for today, which type of visit would you recommend to your best friend?		n= 1,127
Video Visit			15.08% (n= 170)
In Person			9.05% (n= 102)
Telephone			14.82% (n= 167)

Video Visit or Telephone			3.19% (n= 36)
Video Visit or In Person			2.93% (n= 33)
In Person or Telephone			0.54% (n= 6)
Any of these Listed			54.39% (n= 613)
Clinician Comfort	Were you comfortable with providing care through video visit?	n= 37	n= 1,158
Comfortable		86.49% (n= 32)	99.6% (n= 1,153)
Not Comfortable		2.70% (n= 1)	0.4% (n= 5)
No Answer		10.81% (n= 4)	
Operator Perception of Improving Care Delivery	Did the Telehealth visit improve the facility's ability to provide care to patient?	n= 37	n= 1,063
Yes		89.19% (n= 33)	99.34% (n= 1,056)
No		2.70% (n= 1)	0.47% (n= 5)
Not Sure		5.41% (n= 2)	0.19% (n= 2)
No Answer		32.70% (n= 1)	

Table 5. Barriers and Challenges

Barriers and Challenges Identified in Phase 1 and 2	Barriers and Challenges Identified by LAJH
• The provision of Telemedicine equipment alone is not sufficient. • The use of a Telemedicine cart requires a number of upfront costs, including increased cybersecurity and changes in workflow. • The misconception that Telemedicine takes less time than an in-person visit and ignores the opportunity that Telemedicine creates by enabling virtual participation by family, nurses, treating physicians in visits. • The investment in faster internet and devices may cause concern for a facility to implement Telemedicine. • The coordination of different platforms in the healthcare system may cause problems for staff at a facility. • The uncertainty about payment parity once the public health emergency ends may cause a facility to not implement Telemedicine.	• The provision of Telemedicine equipment alone is not sufficient. • The advantages of Telemedicine may have been under-appreciated because patients are not aware of Telemedicine. • The staff time required to facilitate Telemedicine often was not prioritized due to staff shortages often needed to provide routine clinical care although the Center for Medicare and Medicaid Services (CMS) reimbursed facilities to host Telemedicine visits. • The LTCFs struggled during the pandemic with staff shortages, staff retention, and frequent changes in government regulations and expectations. • The delivery of quality training, including all technical issues and daily practice changes, was disruptive and time consuming. • Each facility has their own unique challenges.

• The turnover of staff may cause a facility to not implement Telemedicine. • The concern for quality of Telemedicine may cause staff, patients, and clinicians to be resistant to change.	minimize barriers to implementation.

Table 6. Recommendations

Phase 1 and Phase 2 – Recommendations	
Facilities and Programs	Policymakers
• Identify a high-level champions for the provider and within each facility who will provide leadership. • Prepare and pave the way for staff buy-in with sufficient orientation and training. • Recognize sources of resistance to change and engage those who have concerns. • Understand and address contextual issues as related to unique aspects and needs of each facility. • Realize the importance of initial investment of time and resources to derive the benefits and optimize return on investments. • Ensure coordination and support between information technology (IT) and clinical staff to ensure that both technical and clinic considerations are integrated into implementation. • Recognize that technical assessments should be made in advance of launching a Telemedicine program.	• Create easier funding paths from both Government and Private Sources that are Less Labor Intensive for Staff. • Recognize health technology is a tool that requires integration into IT systems and is essential to achieving Digital Equity. • Understand that Telemedicine equipment alone is not sufficient to implement access to this modality. • Prioritize optimization of Telemedicine to enhance health and medical care for all patients. • Address both Digital Access and Telemedicine with urgency, as the implications for the medically-underserved and digitally disadvantaged are at grave risk.

Appendices

Appendix 1: Telehealth Visit Documentation Tool (Phase 1)

Telehealth Visit Documentation Tool – Rev. 3/2/22

1. Date/Time: _____ Patient ID: _____
(For privacy, please only use: First/Last Initials and Medical Record #)
2. Equipment Used: ☐ AMD ☐ Amwell ☐ Smart Phone ☐ iPad ☐ Other:_____
3. Equipment Operator: *(Name/License or Title)* _____
4. Telehealth Clinician Provider Name: _____
Degree/License: _____ **Specialty**: _____
5. Other Healthcare Professional(s) Present *(Name/License or Title)*: _____
_____
6. Reason for Visit: Regular/Routine Check-up: _____ Change of Condition:_____ COVID-19: _____
Other – (Indicate Primary Concern): _____
7. Patient: *(circle)* Female OR Male Age:____ *(Or prefer not to answer)* _____
8. Ethnicity: ☐ African American/Black ☐ Latino/Hispanic ☐ Other: _____
☐ Asian/Pacific Islander ☐ White
9. Preliminary Diagnosis *(Please list top 3 conditions)*: _____
_____
_____
10. Orders Given: ☐ New Rx ☐ Labs: *(circle)* Blood X-Ray EKG Ultrasound
☐ Change RX ☐ Other: _____
11. Did Telehealth Visit Prevent Hospital Transfer? *(Please circle one of the following:)*
_Yes. This Telehealth visit prevented the need to send patient to ED.
_No. Because the visit was routine. *Other:* _____
_No. Patient needed to go to ED even after the Telehealth visit.
12. PATIENT: Were you comfortable with your video healthcare visit?
☐ Comfortable ☐ Very Comfortable ☐ NOT Comfortable (If not, why not?)_____
13. PATIENT: Would you recommend a video visit to a friend or family member?
☐ Yes ☐ No (If no, why not?)_____ ☐ Not sure
14. CLINICIAN: Were you comfortable providing care through video visit?
☐ Comfortable ☐ Very Comfortable ☐ NOT Comfortable (If not, why not?) _____
15. EQUIPMENT OPERATOR (Bedside Staff): Did the video visit improve the facility's ability to deliver care to this patient?
☐ Yes ☐ No ☐ Not Sure

Appendix 1A: Telehealth Visit Documentation Tool (Phase 2)

Telehealth Visit Documentation Tool –
Final 11.04.22

1. **Date/Time:** _____ **Patient ID:** _____
   (For privacy, please only use: First/Last Initials and Medical Record #)
2. **Equipment Used:** ☐ AMD ☐ Amwell ☐ Smart Phone ☐ iPad ☐ Other:_____
3. **Equipment Operator:** *(Name/License or Title)* _____
4. **Telehealth Clinician Provider Name:**_____
   Degree/License: _____**Specialty**: _____
5. **Other Healthcare Professional(s) Present:** *(Name/License or Title)* _____
   _____
6. **Reason for Visit:** Regular/Routine Check-up: _____ Change of Condition:_____ COVID-19: _____
   Other – (Indicate Primary Concern): _____
7. **Patient:** *(circle)* Female **OR** Male Age:____ *(Or prefer not to answer)* ___
8. **Ethnicity:** ☐ African American/Black ☐ Latino/Hispanic ☐ Other: _____
   ☐ Asian/Pacific Islander ☐ White
9. **Preliminary Diagnosis** *(Please list top 3 conditions)*: _____
   _____
10. **Orders Given:** ☐ New Rx ☐ Labs: *(circle)* Blood X-Ray EKG Ultrasound
    ☐ Change RX ☐ Other: _____
11. ***(*Question for SNFs only)*** **Did Telehealth Visit Prevent Hospital Transfer?** *(Please circle one of the following:)*
    _Yes. This Telehealth visit prevented the need to send patient to ED.
    _No. Because the visit was routine. *Other:* _____
    _No. Patient needed to go to ED even after the Telehealth visit.
12. **PATIENT: Were you comfortable with your video healthcare visit?**
    ☐ Comfortable ☐ Very Comfortable ☐ NOT Comfortable (If not, why not?)_____
13. **PATIENT: For the condition you were treated for today, which of the following types of visit would you prefer in future?** ☐ Video Visit ☐ In-Person ☐ Telephone ☐ Any of these listed
14. **PATIENT: For the condition you were treated for today, which type of visit would you recommend to your best friend?** ☐ Video Visit ☐ In-Person ☐ Telephone ☐ Any of these listed
15. **CLINICIAN: Were you comfortable providing care through video visit?**
    ☐ Comfortable ☐ Very Comfortable ☐ NOT Comfortable (If not, why not?) _____
16. **EQUIPMENT OPERATOR (Bedside Staff): Did the video visit improve the facility's ability to deliver care to this patient?**
    ☐ Yes ☐ No ☐ Not Sure

Appendix 2: Bi-Weekly Telehealth Utilization Check-In

Bi-Weekly Telehealth Utilization Check-in

Date: _____

Staff Name: _____

Facility: _____

Completed by: Leticia Alejandrez, CETF Director of Telehealth and Human Services or Kyle O'Ryan, CETF Program Coordinator

1. Do you have a fully operating/functional AMD (or Amwell) Telehealth cart? Yes/No

    a. If no, why not? What are you struggling with?
    b. Is there any support that can be provided (and from whom) to resolve issue?
    c. What is the timeline for resolving issue?

2. Have you used the AMD (or Amwell) Telehealth Cart? Yes/No

    a. If no, why not? What are you struggling with?
    b. What support is needed to help resolve this issue?
    c. What is the timeline for resolving issue?

3. How many times has Telehealth cart been used this week?

    _____

    a. Was the experience successful? If not, why not: _____
    b. What can be done differently or better to be improved? _____
    c. How can I be supportive? _____

4. What is limiting a more widespread use of Telehealth? _____

    a. Have more staff been trained? If yes, who (e.g., MDs, RN, CNA, etc.) _____
    b. Are you having connectivity or broadband issues? _____
    c. What other technical issues are you having (i.e., EMR, old infrastructure, etc.)?

    _____

5. Are you aware of Telehealth use in your facility to prevent the transmission of infectious disease – i.e., COVID-19, influenza, CDEF, MRSA, etc.? Yes/No

    What type of infectious disease has been addressed – i.e., COVID-19, influenza, CDEF, MRSA, etc.? _____

6. Other/Comments:

[1]Harju, Amelia, and Jonathan Neufeld. "Telehealth utilization during the COVID-19 pandemic: a preliminary selective review." Telemedicine reports 3.1 (2022): 38-47.
[2] STEFFENS, ANDREA, et al. "IMPACT OF THE CORONAVIRUS DISEASE 2019 PANDEMIC ON RESPIRATORY MEDICATION DISPENSING IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN THE UNITED STATES: A POPULATION-BASED STUDY." *CHEST* 164.4 (2023): A4948-A4949.
[3] Lee, Jong-Sik. "A study on the effectiveness of telemedicine monitoring for the health care of the elderly with chronic diseases." *Journal of Knowledge Information Technology and Systems* 15.6 (2020): 1105-1115.
[4] Totten, Annette Marie, Marian S. McDonagh, and Jesse H. Wagner. "The evidence base for telehealth: reassurance in the face of rapid expansion during the COVID-19 pandemic." (2020).
[5] Rheuban, Karen S. "Adopting telemedicine in practice." (2017).
[6] Ulyte, Agne, et al. "Telemedicine Visits in US skilled nursing facilities." *JAMA Network Open* 6.8 (2023): e2329895-e2329895.
[7] https://www.cetfund.org/report/cetf-snf-telehealth-pilot-project-final-evaluation-report/
[8]https://www.cetfund.org/report/telehealth-no-longer-just-about-covid-19-its-about-healthcare-access-and-digital-inclusion/
[9]Gillespie SM, Handler SM, Bardakh A. Innovation through regulation: Covid-19 and the evolving utility of Telemedicine. J Am Med Dir Assoc. 2020(21);1007-9.
[10]Barnett ML, Grabowski DC. Nursing homes are ground zero for COVID-19 pandemic. *JAMA Health Forum*. 2020; 1: e200369
[11]https://www.aarp.org/caregiving/health/info-2020/coronavirus-nursing-home-cases-deaths.hTelemedicinel
[12]He M, Li Y, Fang F. Is there a link between nursing home reported quality and Covid-19 cases? Evidence from California skilled nursing facility. J Am Med Dir Assoc. 2020(21);905-8.
[13]https://efaidnbmnnnibpcajpcglclefindmkaj/https://www.cms.gov/files/document/covid-19-nursing-home-telehealth-toolkit.pdf
[14] Dr. Glen Xiong, MD, CMD specializes in Internal Medicine and Psychiatry at U.C. Davis Health and has clinical expertise in Memory Care, Post-Acute and Long-term Care, and Neuropsychiatry. Dr. Xiong is nationally and internationally recognized for his medical expertise and research in Telemedicine, with funding from the National Institutes of Health. (not a reference)
[15] Zhang, Jun, et al. "Impact of the COVID-19 pandemic and corresponding control measures on long-term care facilities: a systematic review and meta-analysis." Age and Ageing 52.1 (2023): afac308.
[16] Gao, Ya-Dong et al. “Risk factors for severe and critically ill COVID-19 patients: A review.” Allergy vol. 76,2 (2021): 428-455. doi:10.1111/all.14657
[17]Gillespie SM, Moser AL, Gokula M et al. Standards for the use of Telemedicine for evaluation and management resident change of condition in the nursing home. J Am Med Dir Association; 20(2):115-122.
[18] Gillespie SM, Wasserman EB, Wood NE et al. High-intensity Telemedicine reduces emergency department use by older adults with dementia in senior living communities. J Am Med Dir Association; 2019;20(8):942-946.
[19] Driessen J, Bonhomme A, Change W, et al. Nursing home provider perceptions of Telemedicine for reducing potentially avoidable hospitalizations. J Am Med Dir Association; 2016;17(6):519-524.
[20] Jen SP, Bui A, Leonard SD. Maximizing efficiency of Telemedicine in the Skilled Nursing Facility during Coronavirus Disease 2019 Pandemic. J Am Med Dir Association; 22:6):1146-1148.
[21] Bartelt K, Piff A, Allen S, Barkley E. Telehealth Utilization Higher Than Pre-Pandemic Levels, but Down from Pandemic Highs. Epic Research. https://epicresearch.org/articles/telehealth-utilization-higher-than-pre-pandemic-levels-but-down-from-pandemic-highs. Accessed on July 24, 2024.